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Andrew J. Wardrop

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EXAMINER

CHANG, EDITH M

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 02/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/726,978

Applicant(s)

WARDROP ET AL.

Examiner

Edith M. Chang

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments/Remarks

1. Applicant's arguments, see pages 8-12 of the remarks, filed November 6, 2005, with respect to claims 1-11 have been fully considered and are persuasive. The rejection of claims 1-11 has been withdrawn.

Applicant's arguments filed November 6, 2005 regarding claims 12-22 have been fully considered but they are not persuasive.

Claim Objections

2. Claims 12-22 are objected to because of the following informalities:

Claim 12, line 5: "the first oscillator" should be "the oscillator".

Claims 13-22 are dependent on the objected claim 12.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philips et al. (US 6,307,877 B1) in view of Dunlop et al. (US 5,528,199).

Regarding **claims 12 & 17**, in FIG.1, Philips et al. discloses a programmable mobile modem comprising: a reference clock 213 to a Clock Gen. Subsystem 214 (with *the oscillator*) providing the clock signals to transmitter subsystem 1000 and receiver subsystem 211 (FIG.2), a modulation 203 (as the *up converter*) converting the IF signal from the D/A 209 to RF signal (column 13, lines 62-64 & lines 65-66); a demodulation 205 (as the *down converter* converting the received RF signal to the A/D 207 to IF signal (column 13, lines 63-64 & line 65), wherein the up/down converter performs the IF signal to/from RF signal by *a mixer* (as taught in FIG.2 UPCONV. 210 and DOWNCONV. 212) and receive clock signals from the reference clock 213 providing to the oscillator (the Clock Gen. Subsystem 214, column 13 line 66-column 14 line 1); A/D converter 207 and D/A converter 209; a PMCM DSIC 202 inputting and outputting IF signals to and from the A/D 207 and D/A 209 as shown in FIG.2, the receiver subsystem 211 (as the *digital receiver*) with the NCO 232 or the transmitter subsystem 1000 (as the *digital transmitter*) with the NCO 230 with CORCI algorithm executed/set by the DSP processor shown in FIG.3 (column 14, lines 17-20), and receive clock signals from the reference clock 213 (column 13 line 66-column 14 line 2); and a DSP processor 204 (a *computer*) receiving the signals from the clock gen. subsystem 214 (FIG.2) and executing the error correction functionality (column 5, lines 43-47).

However, Philips et al. does not specify the well-known frequency monitor. In FIG.1, Dunlop et al. teaches a circuit to establish and maintain the output frequency of an oscillator (column 1, lines 15-18 '199). As the reference clock providing the clock frequency signals or frequency synthesizers providing the frequency signals in Philips et al.'s system, at the time of the invention was made, it would have been obvious for one of ordinary skill in the art to have the circuit (frequency monitor) adapted to measure the frequency of the oscillator taught by Dunlop et al. in the Philips et al.'s reference clock and frequency synthesizers to have a low-power-dissipation circuit for automatically establishing and maintaining the output frequency at a prescribed value (column 1 lines 15-23 '199).

Regarding **claims 13 & 18**, In FIG.6, Philips et al. discloses an antenna 528 coupled to the down converter 530; and an antenna 526 coupled to the up converter 524.

Regarding **claims 14 & 15**, In FIG.5, Philips et al. discloses the downconverter and the receiver are configured to provide and select a plurality of radio channels a and b (column 2, lines 62-67).

Regarding **claims 16 & 22**, in FIG.2, Philips et al. discloses that the spreading and correlating PN code of the RF signal supporting GPS code (column 14 line 66- column 15 line 2), hence the RF signals of Philips et al. system are GPS signals.

Regarding **claim 19**, in Fig.3, Philips et al. discloses the NCO 320 or 232 of FIG.2 configured to receive the signal from the processor ARM6 (as the computer) via ARM interface 314 to convert the IF signal to correlation & noise estimation or to D/A for

transmission.

Regarding **claims 20 & 21**, in Fig.2, Philips et al. discloses the transmitter subsystem 1000 (the digital transmitter) outputting a digital IF at D/A IF SIGNAL to the D/A to convert to an analog signal provided to the subcarrier modulation 203 (the upconverter) for converting the analog signal to RF signal at TO RF PART (column 13, lines 65-66), wherein the modulator 203 provides a RF signal.

Allowable Subject Matter

5. Claims 1-11 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least an apparatus for digitally compensating received radio frequency signals as a whole, the combination of elements and features, which includes a computer calculating the errors of a first oscillator driving a downconverter and a second oscillator driving an analog-to-digital converter and a digital receiver having a numerically controlled oscillator, and to calculate a numerically controlled oscillator setting received by the numerically controlled oscillator based on the calculation of the errors, or at least an apparatus for digitally compensating transmitted radio frequency signals as a whole as recited in the claims.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit: 2637

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Edith Chang
February 13, 2006


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PRIMARY EXAMINER